

## A taxonomic update of *Stenanthemum* (Rhamnaceae: Pomaderreae) in Western Australia

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### Abstract

Rye, B.L. A taxonomic update of *Stenanthemum* (Rhamnaceae: Pomaderreae) in Western Australia. *Nuytsia* 13(3): 495–507 (2001). A generic description of *Stenanthemum* Reissek is given, together with a key and distribution maps for the 23 species occurring in Western Australia. *Stenanthemum leucophractum* (Schledl.) Reissek is nominated as the type species of the genus. Three new species from south-western Australia, *Stenanthemum liberum* Rye, *S. patens* Rye and *S. sublineare* Rye, are described and illustrated, and new seed measurements are given for *S. cristatum* Rye. All of the new species have conservation priority.

### Introduction

When the genus *Stenanthemum* (Rhamnaceae) was reinstated (Rye 1995), many new Western Australian species were described but no key to species or distribution maps provided. Since then two new species of *Stenanthemum* have been discovered in south-western Australia, and new collections have been made of a species that was illustrated in the earlier paper under the informal name *Stenanthemum* sp. Mt Clifford (*R. Cumming* 1267) but was considered to be too poorly known to describe at that time. These three new species are described here and a generic description of *Stenanthemum* is given to cover all the currently named species. This paper also gives distribution maps and a key for Western Australian taxa.

In the new tribal classification of the Rhamnaceae by Richardson *et al.* (2000), *Stenanthemum* and its close relatives were placed in tribe Pomaderreae Reissek ex Endl. Although the genus *Stenanthemum* was not mentioned in this publication, at least one member of the genus, *S. complicatum* (F. Muell.) Rye, was sampled but was listed under its earlier name of *Spyridium complicatum* F. Muell. This species was clearly separated in the molecular cladogram (Richardson *et al.* 2000: Figure 1) from other genera of the tribe, including *Cryptandra* Sm. (represented by a single species of uncertain identity) and *Spyridium* Fenzl (represented by *S. globulosum* (Labill.) Benth.). An additional species of uncertain identity, referred to as *Spyridium* cf. *forrestianum*, is presumably a second species of *Stenanthemum* as it had a similar molecular makeup to *S. complicatum*, these species together forming a clade. If this

assumption is correct, then Richardson *et al.*'s molecular data give some support for the recognition of *Stenanthemum* as a genus distinct from the two genera in which its species have previously been placed, *Cryptandra* and *Spyridium*.

### Taxonomy

***Stenanthemum*** Reissek (Reissek 1858: 295). – *Spyridium* sect. *Stenanthemum* (Reissek) F. Muell. *nom. inval.* (Mueller 1862: 77). – *Cryptandra* sect. *Stenanthemum* (Reissek) Suess. (Suessenguth 1953: 118). *Type*: *Stenanthemum leucophractum* (Schledl.) Reissek., lectotype here nominated.

*Cryptandra* subg. *Solenandra* Reissek (Reissek 1848: 288). – *Solenandra* (Reissek) Kuntze *nom. illeg.* (Kuntze 1891: 120), *non* Hook. f. (Bentham & Hooker 1873: 43). – *Cryptandra* sect. *Solenandra* (Reissek) Post & Kuntze (Post & Kuntze 1903: 150). *Type*: not designated.

*Shrubs* low to tall, usually lacking spinescent branchlets; indumentum present on young stems and at least part of the flowers, of simple and/or stellate hairs, *Stipules* borne on a somewhat to very hairy base (and usually distinctly less hairy than the base), free to the outside of petiole and generally not appearing to meet there, often shortly to largely connate to the inside of petiole, persistent. *Petioles* very short. *Leaf blades* toothed or entire, conduplicate in bud in most species and often not opening flat (i.e. remaining with a distinct fold along the midvein) at maturity, a few species with recurved to revolute margins, the lower surface usually hairy. *Flowers* sessile or subsessile and closely subtended by at least 2 floral bracts, several to many flowers aggregated into dense head-like clusters surrounded by bracts and leaves; bracts imbricate, brown in most species. *Floral tube* adnate to ovary and with a long or short free tube extending above summit of ovary. *Sepals* 5. *Petals* 5, clawed, with a cupped lamina enclosing an anther in bud. *Disc* adnate to the free floral tube or apparently absent, often lining the tube to the level of the stamen insertion but shallowly scooped to deeply indented between the stamens, glabrous. *Ovary* 3-celled. *Style* glabrous or occasionally with a few hairs at base if ovary summit is hairy; stigmatic lobes 3, spreading. *Fruit* a schizocarp, inferior, indented between the rounded summits of the fruitlets, partially to fully enclosed within the floral tube and bracts; fruitlets (monocarps) crustaceous, dehiscing over the summit and down inner surface, with an open basal attachment forming a basal hole when the fruitlet is shed. *Seeds* with a darkened base, moderately to prominently mottled above; aril moderately large, fleshy, clear-translucent to white or pale ferruginous, with one inner (adaxial) and two lateral lobes.

*Notes.* A genus of at least 28 species, occurring mainly in central and southern Australia, particularly in Western Australia where there are currently 23 species recognized, and also represented by one species in northern Queensland. Distributions of the species in Western Australia are given in Figures 1–3. The Western Australian species are endemic except for *S. notiale*, which also occurs in South Australia and Victoria, and *S. petraeum*, which extends into Northern Territory.

Several other Western Australian species possibly should also be included in the genus *Stenanthemum* but differ in disc and/or fruit characters from the above description. Treatment of these species is being postponed until studies of the generic boundaries in the Rhamnaceae by Kevin Thiele (in prep.) have been finalized.

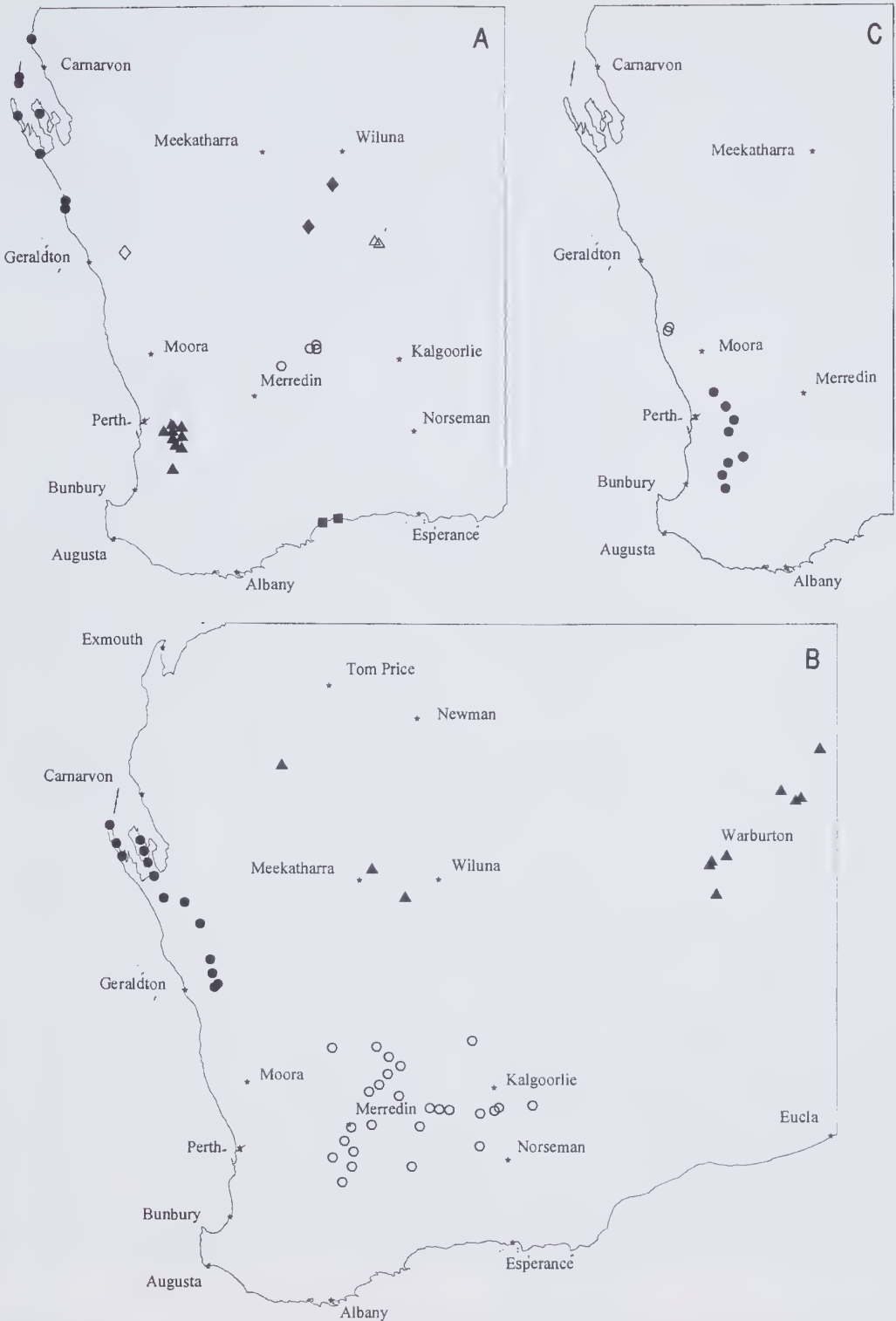


Figure 1. Geographic distributions. A - *Stenanthemum bilobum* Rye ◇, *S. cristatum* ■, *S. divaricatum* Rye ●, *S. nanum* Rye ▲, *S. newbeyi* Rye ○, *S. mediale* Rye ◆ and *S. patens* △; B - *Stenanthemum complicatum* (F. Muell.) Rye ●, *S. petraeum* Rye ▲ and *S. stipulosum* Rye ○; C - *Stenanthemum coronatum* (Reissek) Reissek ● and *S. limitatum* Rye ○.

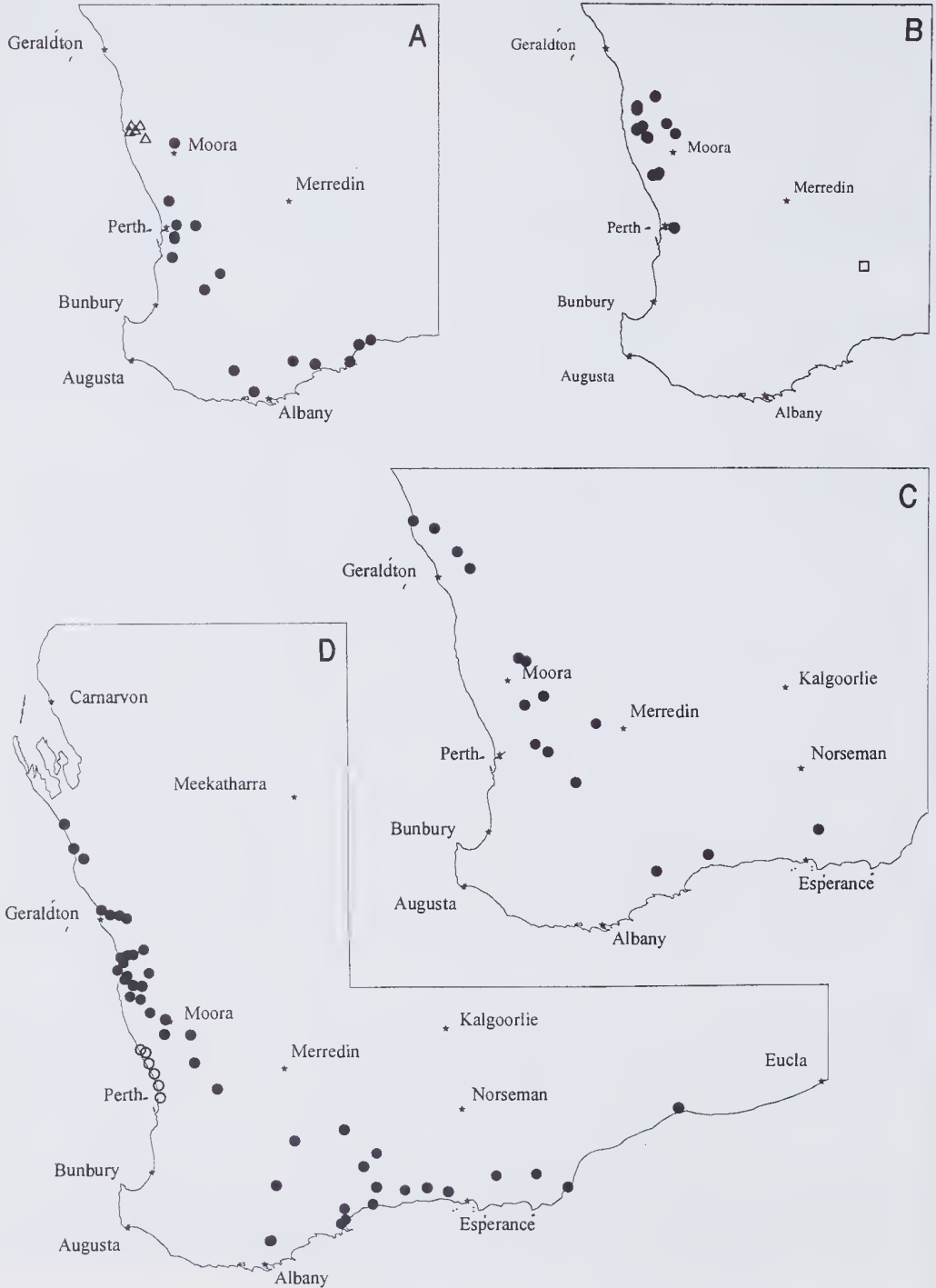


Figure 2. Geographic distributions. A – *Stenanthemum emarginatum* Rye ● and *S. reissekii* Rye △ ; B – *Stenanthemum humile* Benth. ● and *S. liberum* □ ; C – *Stenanthemum intricatum* Rye; D – *Stenanthemum notiale* subsp. *chamelum* Rye ○ and *S. notiale* Rye subsp. *notiale* ● .

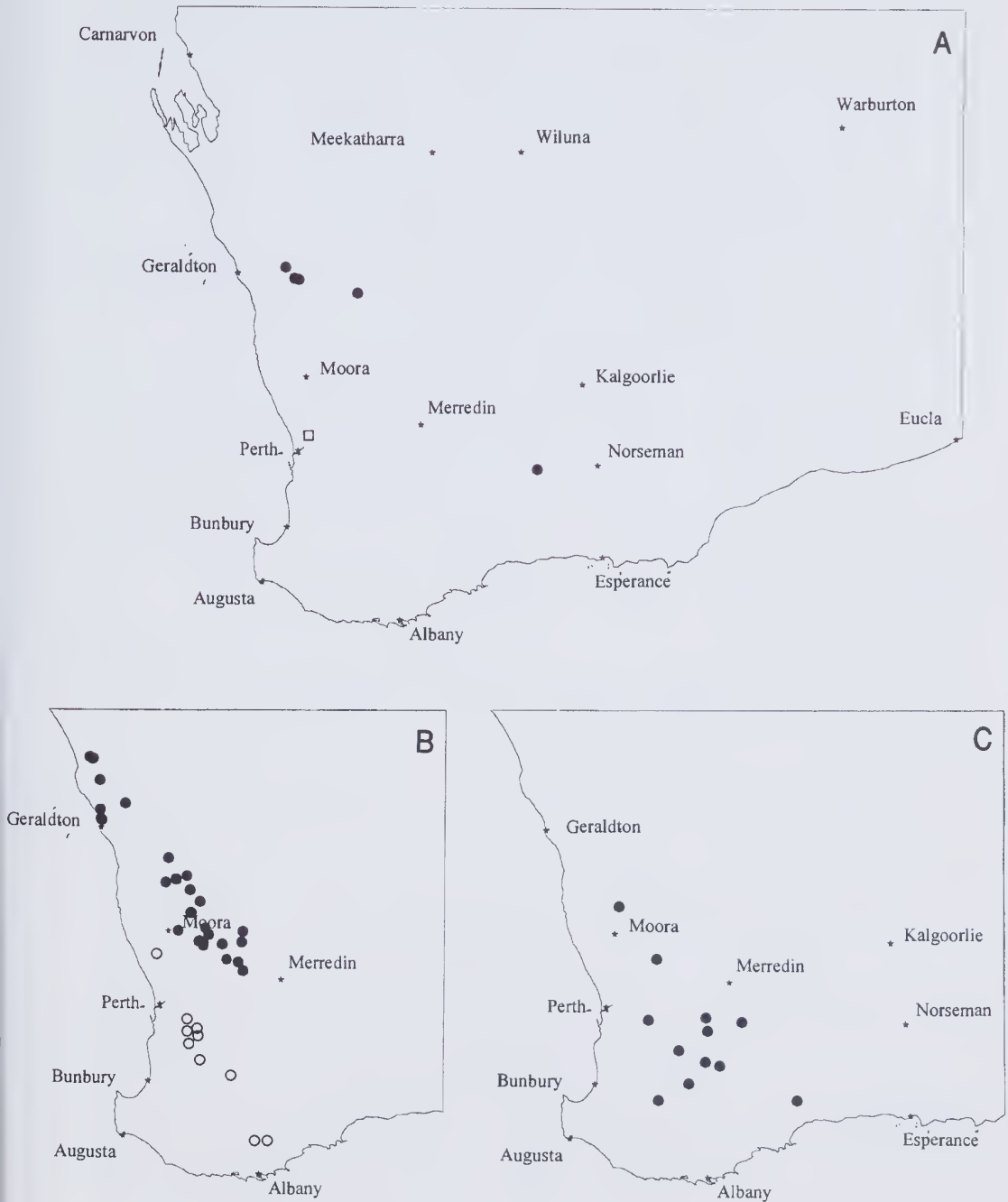


Figure 3. Geographic distributions. A – *Stenanthemum poicilum* Rye ● and *S. sublineare* □; B – *Stenanthemum pomaderroides* (Reissek) Reissek ● and *S. pumilum* (F. Muell.) Diels ○; C – *Stenanthemum tridentatum* (Steud.) Reissek.

**Key to species and subspecies of *Stenanthemum* in Western Australia**

1. Floral tube (in flower) 0.6–1.3 mm long; free portion 0.3–0.8 mm long, shorter than or about as long as the sepals
  2. Stipules free or connate for less than a quarter of their length
    3. Leaves with prominently recurved margins
      4. Leaves prominently 2-lobed at apex; upper surface densely hairy. Bracts whitish. Floral tube *c.* 0.7 mm long, enlarging to *c.* 1.7 mm long in fruit. (Mullewa area) ..... **S. bilobum**
      4. Leaves rounded or very slightly lobed at apex; upper surface minutely papillose. Bracts brown. Floral tube *c.* 1.2 mm long, enlarging to *c.* 2.8 mm in in fruit. (Forrestania area) ..... **S. liberum**
    3. Leaves with margins more or less flat or incurved
      5. Leaves minutely stellate-hairy on upper surface. Ovary summit glabrous. Schizocarp with long deciduous simple hairs, becoming glabrous. (Adelong Station to Kulin to Norseman) ..... **S. stipulosum**
      5. Leaves with minute patent simple hairs on upper surface. Ovary summit densely hairy. Schizocarp hairy, usually densely so, with both long simple and short stellate hairs, sometimes becoming almost glabrous. (Dirk Hartog Island to Mullewa) ..... **S. complicatum**
  2. Stipules connate for one-third to over half their length
    6. Leaves with margins recurved to revolute and meeting midvein on undersurface. Floral tube with large and small hairs on adnate portion, glabrous on free portion ..... **S. sublineare**
    6. Leaves with margins flat to recurved but well separated from midvein. Floral tube hairy throughout or with upper part more densely hairy than lower part
      7. Floral tube (in flower) with the longest hairs 0.8–1 mm long. Sepals with hairs extending *c.* 0.5 mm beyond the apex. (Fitzgerald River National Park.) ..... **S. cristatum**
      7. Floral tube (in flower) with longest hairs 0.3–0.5 mm long. Sepals with hairs extending 0.1–0.3 mm beyond the apex
        8. Leaves narrowly obtriangular or rarely obtriangular, the apex emarginate between 2 prominent acute lobes, papillose on upper surface; lower surface with long antrorse simple hairs tending to obscure the stellate ones. (Gunyidi to Stirling Range and Fitzgerald River National Park) ..... **S. emarginatum**
        8. Leaves narrowly to broadly obovate to obcordate, entire or with 1 or more teeth on each side of apex or with 2 prominent obtuse lobes, either hairy on upper surface or with stellate hairs on lower surface not hidden
          9. Floral tube densely hairy in the lower half and usually throughout. Schizocarp with a dense covering of short stellate hairs combined with scattered long antrorse hairs, sometimes becoming almost glabrous when very old

10. Leaves with 1–3 or more teeth on each side of apical point; upper surface glabrous, papillose or with minute to short, patent to widely antrorse simple hairs
11. Leaves 2–8 mm long, the margins flat or recurved; upper surface with minute to small hairs, sometimes becoming glabrous. Occurring in inland and near-coastal locations, in sandy or clayey soils, sometimes associated with laterite or granite. (Kalbarri to Mt Ridley) ..... **S. intricatum**
11. Leaves 5–15 mm long, the margins recurved; upper surface papillose or rarely with minute simple hairs. Occurring in coastal limestone areas. (Lancelin to Perth) ..... **S. notiale** subsp. **chamelum**
10. Leaves usually entire, rarely with 1 or 2 teeth on each side of apical point; upper surface usually densely covered by stellate hairs and/or long simple antrorse or appressed hairs, rarely moderately densely hairy. (Kalbarri to Stirling Range and Cocklebidy, also South Australia and Victoria) ..... **S. notiale** subsp. **notiale**
9. Floral tube almost glabrous to moderately densely hairy in lower part. Schizocarp rather to very sparsely hairy, either with scattered stellate hairs only or with simple hairs, which are often mixed with a few large stellate hairs
12. Branchlets not spinescent. Leaves with 1 or 2 prominent teeth on each side of apex. Lower floral tube sparsely hairy or appearing glabrous. Schizocarp largely glabrous but with scattered stellate hairs. (Gunyidi to West River) ..... **S. tridentatum**
12. Branchlets often spinescent. Leaves with 2 apparently obtuse lobes (the apical point recurved). Floral tube moderately densely hairy. Schizocarp with a rather sparse indumentum of long simple hairs and often also a few large stellate hairs. (Quobba Station to Kalbarri) ..... **S. divaricatum**
1. Floral tube (in flower) 1.5–6 mm long; free part 0.9–5 mm long, longer than the sepals
13. Disc apparently absent
14. Flowers with very prominently hairy sepals and a less hairy or partly glabrous floral tube
15. Leaves usually almost linear, rarely narrowly obovate, with revolute margins somewhat separated or meeting below. (Eneabba to Perth) ..... **S. humile**
15. Leaves narrowly to broadly obovate, obtriangular or obcordate, conduplicate at first, the margins not recurved or, if so, then widely separated below. (Darling Range to Stirling Range) ..... **S. pumilum**
14. Flowers with sepals not obviously more hairy than floral tube
16. Leaves 2.5–7 x 2.5–6 mm, with 2 or 3 relatively inconspicuous lateral veins on each side of midvein, minutely stellate-hairy on upper surface. (Wilroy to Bremer Range) ..... **S. poicilum**
16. Leaves 8–23 x 5–12 mm, with 5–8 prominent lateral veins on each side of midvein, glabrous or papillose on upper surface except for Kalbarri variant. (Kalbarri to Yorkkraine) ..... **S. pomaderroides**

13. Disc lining floral tube, with u- or v-shaped sinuses between the stamen traces
17. Leaves with upper surface minutely stellate-hairy. (North Leonora area) ..... **S. patens**
17. Leaves with upper surface glabrous, papillose or with simple hairs
18. Stipules free or connate for less than one quarter of their length. Disc with shallow u-shaped sinuses between the stamen traces
19. Leaves with minute simple patent hairs on upper surface. Ovary glabrous. (Mt Manning Range to Ennuin Station) ..... **S. newbeyi**
19. Leaves minutely tuberculate on upper surface, sometimes also with a few long appressed hairs. Ovary summit densely hairy. (Mt Augustus to central ranges, also Northern Territory) ..... **S. petraeum**
18. Stipules connate for one quarter to half their length. Disc with fairly deep v-shaped sinuses between the stamen traces
20. Leaves narrowly obovate, entire, obtuse, without a definite apical point. (Badgingarra area) ..... **S. reissekii**
20. Leaves obovate or obtriangular to circular, laterally toothed at the apex or emarginate, with a recurved to erect apical point
21. Leaves with apex and margins entire. Occurring in the Ereman Botanical Province. (Yeelirrie and Black Hill Stations) ..... **S. mediale**
21. Leaves with apex emarginate or with 1 or more small teeth on each side of apex. Occurring in the South West Botanical Province
22. Bracts ovate or broadly ovate. Floral tube 1.5–1.8 mm long in flower, enlarging to 3–3.5 mm in fruit. (Darling Range) ..... **S. nanum**
22. Bracts subulate to narrowly triangular. Floral tube 2.5–3.5 mm long in flower, either not distinctly enlarging (*S. coronatum*) or enlarging to 5–6 mm (*S. limitatum*) in fruit
23. Outer bracts 2.5–3 mm long. Free portion of floral tube densely stellate-hairy (and with long simple hairs) not greatly contrasting with the very densely hairy adnate portion. Ovary summit glabrous. (Clackline to Darkan) ..... **S. coronatum**
23. Outer bracts 1.5–2 mm long. Free portion of floral tube rather sparsely stellate-hairy (and with a few long simple hairs) in marked contrast to the very densely hairy adnate portion. Ovary summit with hairs *c.* 0.2 mm long. (Mt Lesueur area) ..... **S. limitatum**

**Stenanthemum cristatum** Rye (Rye 1995: 284).

*Notes.* At the time this species was described, the seed morphology was omitted. Mature seeds have now been found on *C.A. Gardner & W.E. Blackall* 1406. They are typical of their genus, being prominently mottled with the base darkened and with a 3-lobed basal aril. The seed body is *c.* 1.3 x 0.7 mm and very pale brown with dark brown stripes and splodges. The aril is ferruginous-translucent and almost 1 mm long.

**Stenanthemum liberum** Rye, *sp. nov.*

Stipulae librae; folia margine recurvata, supra papillosa; tubus floralis brevis, parte libra sepalis brevior.



*Typus:* west of South Ironcap [precise locality withheld], Western Australia, 8 September 1996, N. Gibson 2515 (*holo:* PERTH 04695216; *iso:* CANB).

*Shrubs* dwarf or prostrate, probably *c.* 0.05 m high, not spinescent. *Young stems* with a dense tangled indumentum; hairs mostly *c.* 0.3 mm long, fine. *Stipules* free, 2–3 mm long, acuminate, sparsely hairy or glabrous. *Petioles* *c.* 1 mm long, densely hairy. *Leaf blades* elliptic to obovate, 4–5 x 2.5–3.5 mm, entire, with recurved margins and a short recurved apical point; lower surface with a very dense indumentum of appressed simple hairs; upper surface minutely papillose, green. *Flowers* several to fairly numerous in axillary or terminal clusters 3–8 mm wide. *Floral bracts* several per flower, mostly broadly ovate, up to *c.* 1.5 mm long, distinctly pointed to long-acuminate at apex; outer surface largely glabrous or glabrous towards upper margins, with simple appressed hairs concentrated along the midvein. *Floral tube* *c.* 1.2 mm long (enlarging to *c.* 2.8 mm in fruit); adnate portion of tube *c.* 0.5 mm long, with curved simple hairs *c.* 0.5 mm long; free portion of tube *c.* 0.7 mm long, with a very dense tangled indumentum of simple hairs, which are intermediate in length between those on the adnate base of tube and those on the sepals. *Sepals* *c.* 0.9 mm long, with a fairly dense tangled indumentum of simple hairs, the largest hairs *c.* 0.3 mm long. *Disc* not clear on the old flowers examined, possibly absent. *Ovary summit* glabrous. *Style* *c.* 1.0 mm long. *Schizocarp* *c.* 2.5 mm long. *Seeds* somewhat compressed, more or less elliptic in outline, *c.* 1.3 x 0.9 mm, prominently mottled with pale to medium brown and almost black patches; aril with the inner lobe very prominent. (Figure 4A–E)

*Other specimen examined.* WESTERN AUSTRALIA: near South Ironcap [precise locality withheld], 6 Sep. 1996, N. Gibson 2518 (PERTH).

*Distribution.* Endemic to the South West Botanical Province of Western Australia. Known only from near South Ironcap, east of Hyden. (Figure 2B)

*Habitat.* Recorded in yellow sandy loam over laterite, in vegetation dominated by *Eucalyptus argyphaea*.

*Phenology.* Flowers and fruits: August to September.

*Conservation status.* CALM Conservation Codes for Western Australian Flora: Priority One. Known only from two localities not far apart.

*Etymology.* From the Latin *liber* – free, not joined, referring to the free stipules.

*Notes.* Previously known informally as *Stenanthemum* sp. South Ironcap (N. Gibson 2515). The species is possibly related to *Stenanthemum poicilum* Rye, the two species having a similar seed, but *S. poicilum* is readily distinguished by its longer flowers and several leaf characters including the presence of minute stellate hairs on the upper surface.

Only old flowers are present on the two specimens of *S. liberum* examined, so flower measurements need to be checked when flowering material becomes available.

***Stenanthemum patens* Rye, *sp. nov.***

*Stenanthemi stipulosi* simile sed ramulis magis divergentibus et aliquantum spinescentibus, floribus et fructis grandioribus differt.

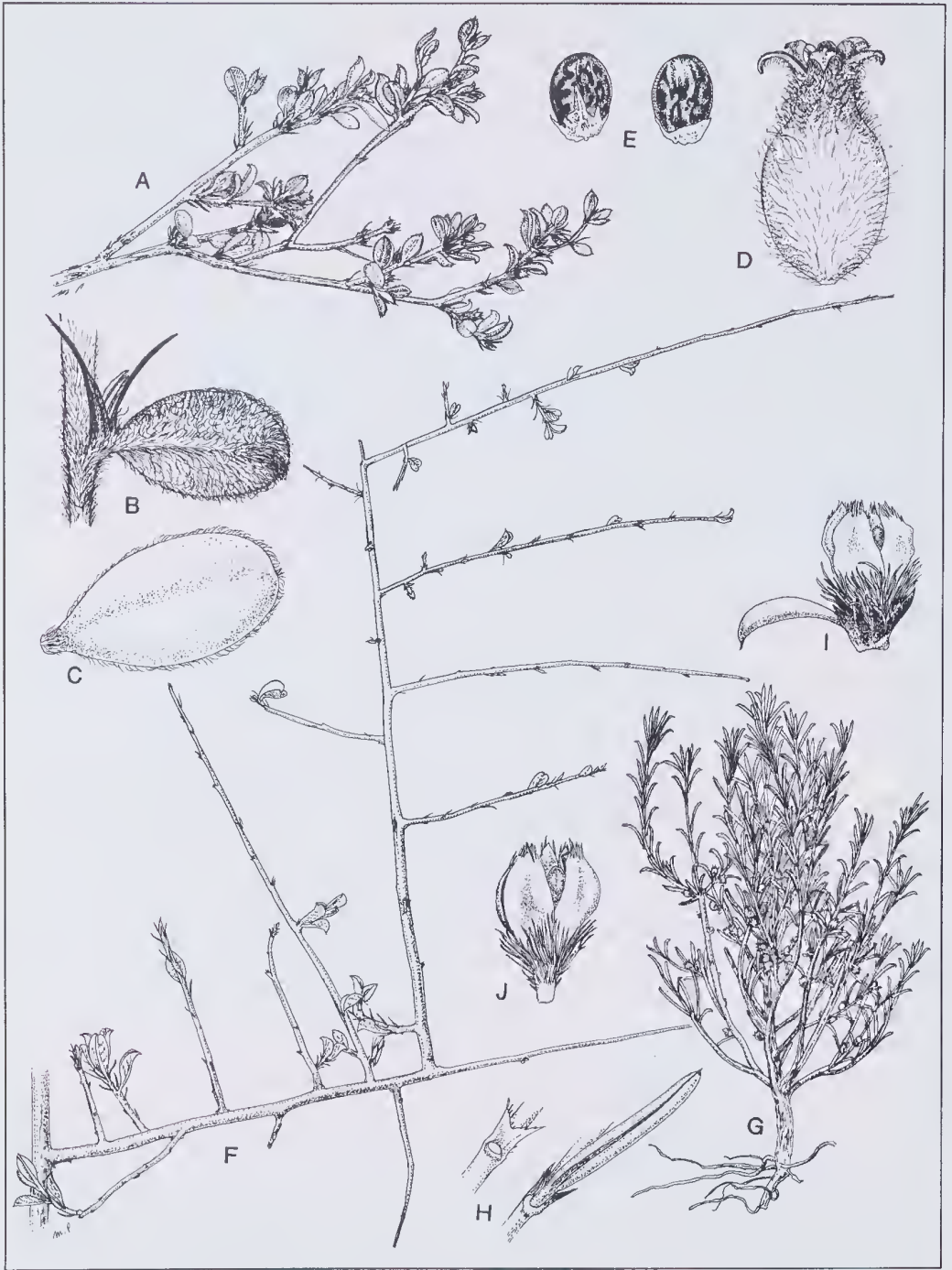


Figure 4. A-E. *Stenanthemum liberum*. A - fruiting branch (x1), B - stipules and leaf undersurface (x7), C - leaf upper surface (x7), D - fruit enclosed in floral tube (x12), E - inner and outer surfaces of seed and aril (x10); F - *Stenanthemum patens*, branching habit (x1); G-J. *Stenanthemum sublineare*. G - whole plant (x1), H - stipules and undersurface of leaf (x6), I - young flower with subtending leaf and bracts (x12), J - flower and pedicel (x14). Drawn from N. Gibson 2518 (A-E), M. Hudson & K. Stratford 2997 (F) and M. Histop 1023 (G-J).

*Typus*: between Teutonic and Mt Clifford [precise locality withheld], Western Australia, 16 August 1981, *R. Cumming* 1267 (*holo*: PERTH 02937786; *iso*: CANB).

*Illustration*. Rye (1995: Figure 11M–P).

*Shrub* c. 0.5 m high, with widely spreading, apparently somewhat spinescent branchlets commonly 20–100 mm long. *Young stems* with a dense indumentum of simple and much shorter stellate hairs; simple hairs appressed to patent (mostly antrorse), the largest ones c. 0.6 mm long. *Stipules* connate at the base usually for one quarter to almost half their length, 1.3–2.5 mm long, sparsely to moderately densely hairy. *Petioles* 1–2 mm long, densely hairy. *Leaf blades* conduplicate at first, obovate or broadly obovate, 5–8 x 4–5 mm, entire, the margins flat or slightly recurved at maturity, the apex distinctly recurved; lower surface whitish, with 3 or 4 main veins on each side of midvein, with a dense indumentum of simple hairs mostly 0.5–0.8 mm long and short stellate hairs, some of the simple hairs along the veins and margins ferruginous; upper surface grey-green, densely minutely stellate-hairy, sometimes also with a few long simple hairs. *Flowers* fairly numerous in dense clusters 5–8 mm wide; involucre bracts more or less ovate, c. 5 mm long, densely hairy outside except for glabrous margins. *Floral bracts* several per flower, ovate to very broadly ovate, 3–4 mm long, often with two or more apical or subapical points; outer surface with margins glabrous, the remainder densely covered by long deciduous simple hairs; inner surface glabrous. *Floral tube* 2.5–3 mm long (enlarging to 5.5–6 mm long in fruit); free portion 2–2.5 mm long, with a dense indumentum of simple spreading hairs and much smaller stellate hairs; adnate portion c. 0.5 mm long, with a very dense indumentum of simple antrorse hairs c. 1.5 mm long. *Sepals* c. 0.8 mm long, with a dense indumentum of simple spreading hairs mostly c. 0.4 mm long and smaller stellate hairs. *Disc* apparently lining lower half of free portion of floral tube, with deep v-shaped sinuses between the stamen insertion points. *Ovary summit* glabrous. *Style* c. 3 mm long. *Schizocarp* c. 3.5 mm long, with long deciduous hairs on the adnate floral tube. *Seeds* not seen at maturity; aril clear-translucent, prominently 3-lobed. (Figure 4F)

*Other specimens examined*. WESTERN AUSTRALIA: Bundarra Station [precise locality withheld], 18 June 1997, *M. Hudson* 3049 (PERTH); Bundarra Station [precise locality withheld], 20 July 1997, *M. Hudson & K. Stratford* 2997 (PERTH).

*Distribution*. Endemic to the Eremean Botanical Province of Western Australia. Known only from Bundarra Station and near Mt Clifford, north of Leonora. (Figure 1A)

*Habitat*. Recorded from a rocky hillside in low *Acacia* shrubland and from low basalt hills in an open shrubland with *Hemigenia exilis* and *Grevillea inconspicua*.

*Phenology*. Flowers and fruits recorded in August.

*Conservation status*. CALM Conservation Codes for Western Australian Flora: Priority One. Known only from three localities over a range of less than 20 km. One of the populations on Bundarra Station was recorded as having 50–100 plants.

*Etymology*. From the Latin *patens* – open, outstretched, used in a botanical sense for diverging from the axis at almost 90 degrees, referring to the tendency for the branchlets to be widely divergent from the axis.

*Notes*. The informal name *Stenanthemum* sp. Mt Clifford (*R. Cumming* 1267) has been used for this species. It has patent, rather spinescent branchlets, which are stiffly and loosely interwoven to give

the plant a tangled appearance. It is closely related to *Stenanthemum stipulosum* Rye, which differs in its less spinescent habit and shorter flowers and fruits. The two species appear to be allopatric, with *S. patens* occurring north of the range of *S. stipulosum*.

***Stenanthemum sublineare* Rye, *sp. nov.***

Stipulae connatae; folia fere linearia, marginibus recurvis vel revolutis; pars adnata tubi floralis pilis grandibus, parte libera glabra sepalis brevioribus.

*Typus*: west of Bullsbrook [precise locality withheld], Western Australia, 21 December 1997, *M. Hislop* 1023 (*holo*: PERTH 04916972; *iso*: CANB).

*Shrubs* erect, *c.* 0.1 m high, *c.* 0.04 m wide, not spinescent. *Young stems* with few to numerous hairs; hairs simple, antrorse, up to 0.1 mm long, rather coarse and often tooth-like. *Stipules* *c.* 1 mm long, united for most of their length, acute or acuminate, ciliate. *Petioles* 0.6–1 mm long, glabrous. *Leaf blades* very narrowly ovate-oblong to linear, 4–6 x 0.5–0.8 mm, with recurved to revolute margins, mucronate; lower surface with long appressed simple hairs covering the broad midvein, the remainder of undersurface concealed; upper surface glabrous except for a few tooth-like minute hairs concentrated towards the apex, green. *Inflorescence* of axillary flowers or small axillary clusters up to 4 mm wide, each axil with 1–3 flowers; flowers greenish, with a pedicel *c.* 0.3 mm long. *Floral bracts* usually 2, ovate or broadly ovate, up to *c.* 1 mm long, acute or with a broad toothed apex, ciliate; outer surface often hairy towards apex. *Floral tube* *c.* 1 mm long (not seen in mature fruit); adnate portion of tube *c.* 0.7 mm long, very densely hairy with a mixture of minute hairs and large simple antrorse hairs, the large hairs *c.* 0.5 mm long; free portion of tube *c.* 0.3 mm long, glabrous. *Sepals* *c.* 1 mm long, largely glabrous but with a few simple antrorse hairs at apex, the largest hairs up to 0.2 mm long. *Disc* glabrous, scarcely lining floral tube, very shallowly scooped between the stamen insertion points. *Ovary summit* glabrous. *Style* *c.* 0.4 mm long. *Fruit* not seen. (Figure 4G–J)

*Other specimen examined*. WESTERN AUSTRALIA: W of Bullsbrook [precise locality withheld], 27 Oct. 1997, *M. Hislop* 979 (PERTH).

*Distribution*. Endemic to the South West Botanical Province of Western Australia. Known only from the Swan Coastal Plain west of Bullsbrook. (Figure 3A)

*Habitat*. Recorded in littered white sand, in a woodland dominated by *Banksia attenuata* on the coastal plain.

*Phenology*. Flowers: October to December. Young fruits present in December.

*Conservation status*. CALM Conservation Codes for Western Australian Flora: Priority Two. Known only from a single population in a conservation park, where there are at least 50 plants.

*Etymology*. From the Latin *sub* – somewhat and *linearis* – linear, referring to the almost linear leaves.

*Notes*. This is one of the few species of *Stenanthemum* to have the leaves almost linear, with recurved margins meeting the midvein of the undersurface. The indumentum on the floral tube is unique in the genus, with large hairs on the adnate portion but no hairs on the free portion. Fruiting specimens are needed for this species to give a more complete description, but it is sufficiently distinctive to recognize from either vegetative characters or floral characters alone.

### Acknowledgements

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